Please cancel claims 1 through 33, without prejudice, and replace therefor, new claims 34 through 94 as set forth below.

A1

38.
34. (new) A printhead for squirting out a hot liquid medium, comprising:

a diaphragm that forms a wall of a medium chamber;

an actuator in mechanical contact with the diaphragm comprising a piezoelement, the piezoelement being thermally decoupled from the diaphragm by a thermal barrier element;

the thermal barrier element being an integral part of the piezoelement with the piezoelement having an active region and a passive region, the passive region forming the thermal barrier element; and

the active region and the passive region having electrodes, the electrodes at a transition region between active and passive regions being interrupted.

39.
35. (new) The printhead of claim 34, wherein a cross-section in a region of the thermal barrier element is smaller than in a remaining region of the actuator.

40.
36. (new) The printhead of claim 34, wherein other walls of the medium chamber are formed by a substrate comprised of silicon.

41.
37. (new) The printhead of claim 34, wherein the actuator is surrounded by a housing.

A1 cont.

42.
38. (new) The printhead of claim 37, wherein the actuator is configured as lamella and extends between the diaphragm and a wall of the housing which forms an abutment for the actuator.

43.
39. (new) The printhead of claim 37, wherein the housing is configured to be at least one of electrically insulating and poor heat conducting.

44.
40. (new) The printhead of claim 37, wherein the housing is formed from a material that has a heat expansion coefficient that is at least similar to the heat expansion coefficient of the material forming the actuator.

45.
41. (new) The printhead of claim 34, wherein the diaphragm of the medium chamber forms a housing wall.

46.
42. (new) The printhead of claim 37, wherein the housing is thermally decoupled from the medium chamber.

47.
43. (new) The printhead of claim 37, wherein the housing has thermal expansion compensation.

48. ~~44~~. (new) The printhead of claim 34, further comprising at least one of a heating device and a cooling device for the medium.

49. ~~45~~. (new) The printhead of claim 44, wherein the at least one of a heating device and a cooling device cooperates with the medium chamber.

50. ~~46~~. (new) The printhead of one of claim 44, wherein the at least one of a heating device and a cooling device is surrounded by a casing.

51. ~~47~~. (new) The printhead of claim 46, wherein a wall of the casing is formed from a substrate.

52. ~~48~~. (new) The printhead of claim 47, wherein the casing is thermally decoupled from the substrate.

53. ~~49~~. (new) The printhead of claim 34, wherein the medium chamber has at least one squirting-out opening for the hot liquid medium.

54. ~~50~~. (new) The printhead of claim 34, further comprising a protective medium outlet for a protective medium that forms a protective atmosphere which prevents the oxidation of a hot liquid medium.

A1 cont.

55.
51. (new) The printhead of claim 37, further comprising a protective medium outlet is provided on the housing.

56.
52. (new) The printhead of claim 51, wherein the housing has an inlet for the protective medium.

57.
53. (new) The printhead of claim 52, wherein the inlet and the outlet are arranged in the housing such that the actuator lies at least in some areas in the flow path of the protective medium.

58.
54. (new) The printhead of claim 37, wherein at least one of thermal decoupling between the housing and the medium chamber and heat expansion compensation of the housing is realized through at least one slot in the housing.

59.
55. (new) The printhead of claim 54, wherein the at least one slot serves as a protective medium outlet.

60.
56. (new) The printhead of claim 54, wherein the at least one slot forms a comb structure on an edge of the housing.

61.
57. (new) The printhead of claim 37, further comprising a holding plate within the housing for the actuator, the holding plate lying approximately parallel to the

diaphragm, the actuator engaging through the holding plate with the thermal barrier element facing the diaphragm.

62\. 58. (new) The printhead of claim 57, wherein the retaining plate is retained and guided by guide slopes on the interior of the housing.

63\. 59. (new) The printhead of claim 34, further comprising a temperature-detecting device coupled to the medium chamber for measuring the medium temperature.

64\. 60. (new) The printhead of claim 34, wherein the medium comprises a metallic solder for apply the metallic solder to a soldered joint of at least one of a micromechanical and a microelectronic element.

65\. 61. A printhead for squirting out a hot liquid medium, comprising:

a membrane that forms a wall of a medium chamber;

an actuator in mechanical contact with the membrane comprising a piezoelement, the piezoelement being thermally decoupled from the membrane by a thermal barrier element;

the thermal barrier element being an integral component of the piezoelement with the piezoelement having an active region and a passive region, the passive region forming the thermal barrier element; and

the active region having electrodes and the passive region configured without electrodes.

A1 cont.

66.
62. (new) The printhead of claim 61, wherein a cross-section in a region of the thermal barrier element is smaller than in a remaining area of the actuator.

67.
63. (new) The printhead of claim 61, wherein other walls of the medium chamber are formed by a substrate comprised of silicon.

68.
64. (new) The printhead of claim 61, wherein the actuator is surrounded by a housing.

69.
65. (new) The printhead of claim 64, wherein the actuator is configured as lamella and extends between the diaphragm and a wall of the housing which forms an abutment for the actuator.

70.
66. (new) The printhead of claim 64, wherein the housing is configured to be at least one of electrically insulating and poor heat conducting.

71.
67. (new) The printhead of claim 64, wherein the housing is formed from a material that has a heat expansion coefficient that is at least similar to the heat expansion coefficient of the material forming the actuator.

72.
68. (new) The printhead of claim 61, wherein the diaphragm of the medium chamber forms a housing wall.

A1 cont.

73.
69. (new) The printhead of claim 64, wherein the housing is thermally decoupled from the medium chamber.

74.
70. (new) The printhead of claim 64, wherein the housing has thermal expansion compensation.

75.
71. (new) The printhead of claim 61, further comprising at least one of a heating device and a cooling device for the medium.

76.
72. (new) The printhead of claim 71, wherein the at least one of a heating device and a cooling device cooperates with the medium chamber.

77.
73. (new) The printhead of one of claim 71, wherein the at least one of a heating device and a cooling device is surrounded by a casing.

78.
74. (new) The printhead of claim 73, wherein a wall of the casing is formed from a substrate.

79.
75. (new) The printhead of claim 74, wherein the casing is thermally decoupled from the substrate.

A1 cont.

80.
76. (new) The printhead of claim 61, wherein the medium chamber has at least one squirting-out opening for the hot liquid medium.

81.
77. (new) The printhead of claim 61, further comprising a protective medium outlet for a protective medium that forms a protective atmosphere which prevents the oxidation of a hot liquid medium.

82.
78. (new) The printhead of claim 64, further comprising a protective medium outlet is provided on the housing.

83.
79. (new) The printhead of claim 78, wherein the housing has an inlet for the protective medium.

84.
80. (new) The printhead of claim 79, wherein the inlet and the outlet are arranged in the housing such that the actuator lies at least in some areas in the flow path of the protective medium.

85.
81. (new) The printhead of claim 64, wherein at least one of thermal decoupling between the housing and the medium chamber and heat expansion compensation of the housing is realized through at least one slot in the housing.

A1 cont.

86.
82. (new) The printhead of claim 81, wherein the at least one slot serves as a protective medium outlet.

87.
83. (new) The printhead of claim 81, wherein the at least one slot forms a comb structure on an edge of the housing.

88.
84. (new) The printhead of claim 64, further comprising a holding plate within the housing for the actuator, the holding plate lying approximately parallel to the diaphragm, the actuator engaging through the holding plate with the thermal barrier element facing the diaphragm.

89.
85. (new) The printhead of claim 84, wherein the retaining plate is retained and guided by guide slopes on the interior of the housing.

90.
86. (new) The printhead of claim 61, further comprising a temperature-detecting device coupled to the medium chamber for measuring the medium temperature.

91.
87. (new) The printhead of claim 61, wherein the medium comprises a metallic solder for apply the metallic solder to a soldered joint of at least one of a micromechanical and a microelectronic element.

92.
88. (new) A method for producing a joint, comprising:

A1 Conc.

providing a metallic solder; and

squirting out the solder as a hot liquid solder by a device functioning according to the inkjet process to the contact point of the joint.

93.
89. (new) The method of claim 88, further comprising squirting out the solder from the device as at least one hot liquid drop.

94.
90. (new) The method of claim 88, further comprising providing an oxidation protection medium and surrounding the solder with the oxidation protection medium during the squirting out.

95.
91. (new) The method of claim 90, further comprising providing an inert gas as the oxidation protection medium.

96.
92. (new) The method of claim 88, further comprising detecting and monitoring the temperature of the solder.

97.
93. (new) The method of claim 88, further comprising pulse driving the device to squirt out a plurality of drops.

98.
94. (new) The method of claim 88, further comprising applying the solder to at least one of a micromechanical and a microelectronic element.